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IN THE CLAIMS

Claims 1-26 (Cancelled).

Claim 27 (Currently Amended): A method of producing a blank biochip, comprising:

a) providing a substrate;

b) depositing a layer of material onto a surface of said substrate~~; wherein said layer can initiate and promote the adhesion of a copolymer film comprising a pyrrole and a functionalized pyrrole by electropolymerisation;~~

c) coating the layer of material with a resin layer; and

d) producing a plurality of microwells in the resin layer wherein the layer of material forms at least a part of the base of the microwells; and

e) initiating and promoting ~~wherein~~ on said base of the microwells ~~provides for initiating and promoting thereon~~ the adhesion of ~~the~~ a copolymer film comprising pyrrole and funtionalized pyrrole by electropolymerization after the formation of the microwells, ~~and~~

wherein the copolymer film allows for the fixation of a biological probe on the base of the microwells.

Claim 28 (Currently Amended): The method of claim 27, further comprising

e) directly or indirectly fixating a biological probe to the functionalised pyrrole by injecting a biological probe solution, in one or more ~~microtroughs~~ microwells in the presence of chemical reagents required for the fixating.

Claim 29 (Currently Amended): The method of claim 27, wherein the layer of material is a metallic layer and wherein b) further comprises

depositing the metallic layer onto the substrate; depositing a layer of resin or polymer onto the metallic layer; and engraving the resin layer to form ~~microtroughs~~ microwells; and wherein the metallic layer forms at ~~lest~~ least a part of the base of the ~~microtroughs~~ microwells.

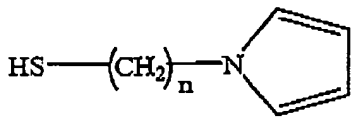
Claim 30 (Previously Presented): The method of claim 29, wherein the metallic layer is a gold layer.

Claim 31 (Currently Amended): The method of claim 30, which further comprises

chemically treating the gold layer at the base of the ~~microtroughs~~ microwells in the presence of a functionalized pyrrole to form a pyrrole monolayer to the gold layer at the base of the ~~microtroughs~~ microwells.

Claim 32 (Previously Presented): The method of claim 31, wherein the functionalized pyrrole contains a thiol group.

Claim 33 (Previously Presented): The method of claim 32, wherein the functionalised pyrrole with a thiol group has the following chemical formula:



wherein n is from 2 to 10.

Claim 34 (Previously Presented): The method according to claim 27, wherein the substrate is a silicon insert.

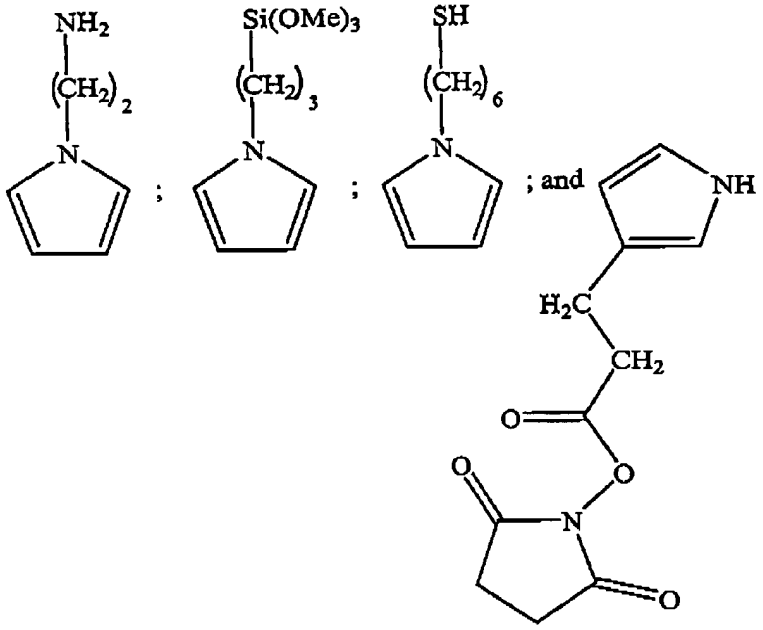
Claim 35 (Currently Amended): The method of claim 27, wherein the substrate is a silicon insert and the layer of material is a layer of silane comprising an alignment of pyrrole sites; wherein the method further comprises depositing a layer of resin on the silicon insert, which is coated with an SiO_2 film; and engraving the resin layer to form the ~~microtroughs~~ microwells, wherein the SiO_2 film forms at least a part of the base of the ~~microtroughs~~ microwells; and treating the ~~microtroughs~~ microwells with a functionalized silanization agent and a pyrrole to fix the silane layer comprising an alignment of pyrrole sites on the SiO_2 film in the base of the ~~microtroughs~~ microwells.

Claim 36 (Previously Presented): The method of claim 35, wherein the silanisation agent is selected from the group consisting of N(3-(trimethoxysilyl)propyl) pyrrole, a functionalized pyrrole with a $-SiCl_3$, and a functionalized pyrrole with a $-Si(OMe)_3$ group.

Claim 37 (Previously Presented): The method of claim 27, which further comprises immersing the structured substrate in an electrolytic bath comprising a solution of pyrrole, functionalised pyrrole, and suitable chemical reagents for electropolymerisation, in the presence of a counterelectrode which is immersed in the electrolytic bath and is independent of the structured substrate, wherein the layer of material forms a working electrode.

Claim 38 (Previously Presented): The method of claim 27, wherein the functionalised pyrrole is a pyrrole with a group selected from the group consisting of an NH_2 group, a thiol group, an N-hydroxysuccinimide ester group, a trimethoxy silyl group, a carboxyl group, an aldehyde group, and an isothiocyanate group.

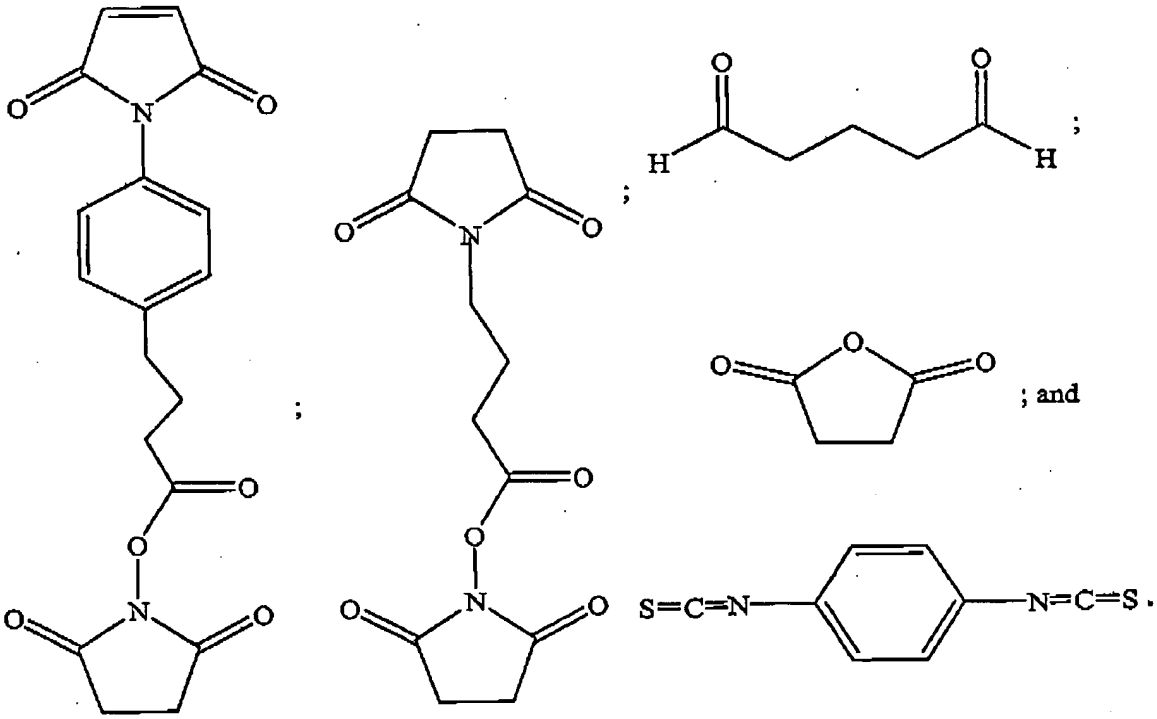
Claim 39 (Previously Presented): The method of claim 27, wherein the functionalised pyrrole is selected from the group consisting of:



Claim 40 (Previously Presented): The method of claim 28, wherein prior to fixating the biological probe, the method further comprises collectively fixating a cross-linking agent on the functionalized pyrrole in the presence of suitable chemical reagents, wherein the crosslinking agent comprises a first function enabling its fixation onto the functionalised pyrrole, and a second function enabling the fixation of the biological probe on the cross-linking agent.

Claim 41 (Previously Presented): The method of claim 40, wherein the cross-linking agent is selected from the group consisting of a dialdehyde, a diisothiocyanate, a diacid, a succinic anhydride, and a derivative thereof.

Claim 42 (Previously Presented): The method of claim 40, wherein the cross-linking agent is selected from the group consisting of:



Claim 43 (Previously Presented): The method of claim 28, wherein the biological probe is selected from the group consisting of an oligonucleotide, DNA, RNA, a peptide, a glucide, a lipid, a protein, an antibody, and an antigen.

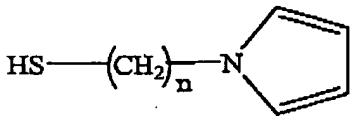
Claim 44 (Previously Presented): The method of claim 43, wherein the oligonucleotide is functionalized with a thiol group.

Claim 45 (Currently Amended): The method according to claim 30, which further comprises

chemically treating the gold layer at the base of the ~~microtroughs~~ microwells in the presence of a functionalised pyrrole to form a monolayer of pyrrole on the gold layer at the base of the ~~microtroughs~~ microwells.

Claim 46 (Previously Presented): The method of claim 45, wherein the pyrrole is functionalized with with a thiol group.

Claim 47 (Previously Presented): The method of claim 46, wherein the functionalized pyrrole with a thiol group has the following chemical formula:



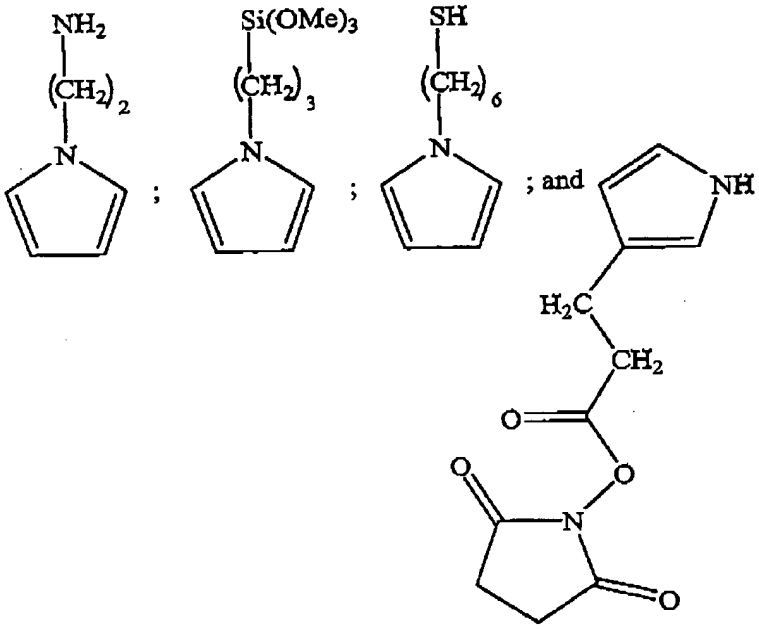
wherein n is from 2 to 10.

Claim 48 (Previously Presented): The method of claim 28, wherein the substrate is a silicon insert.

Claim 49 (Previously Presented): The method of claim 28, which further comprises immersing the structured substrate in an electrolytic bath comprising a solution of pyrrole, functionalized pyrrole, and suitable chemical reagents for electropolymerisation, in the presence of a counterelectrode which is immersed in the electrolytic bath and is independent of the structured substrate, wherein the layer of material forms a working electrode.

Claim 50 (Previously Presented): The method according to claim 28, wherein the functionalised pyrrole is a pyrrole comprising a group selected from the group consisting of an NH_2 group, a thiol group, an N-hydroxysuccinimide ester group, a trimethoxy silyl group, a carboxyl group, an aldehyde group, and a isothiocyanate group.

Claim 51 (Previously Presented): The method according to claim 28, wherein the functionalised pyrrole is selected from the group consisting of:



Claim 52 (Currently Amended): A blank biochip comprising in this order: a substrate; a layer of material that can initiate and promote the adhesion of a pyrrole and functionalised pyrrole copolymer film on the layer of material by electropolymerisation; a layer of resin coating the layer of material, forming ~~microtroughs~~ microwells such that the base of the ~~microtroughs~~ microwells is composed at least partly of the layer of material; and a pyrrole and functionalised pyrrole copolymer layer fixed on the base of the ~~microtroughs~~ microwells.

Claim 53 (Currently Amended): A biochip comprising in this order; a silica substrate; a gold layer ~~or a silane layer~~ comprising pyrrole sites; a resin layer coating the gold layer ~~or silane layer~~ comprising pyrrole sites forming ~~microtroughs~~ microwells such that the base of the ~~microtroughs~~ microwells is composed at least partly of the gold layer ~~or the silane layer~~ comprising pyrrole sites; a pyrrole and functionalised pyrrole copolymer layer fixed on the gold layer ~~or the silane layer~~ comprising pyrrole sites at the base of the ~~microtroughs~~ microwells, wherein the functionalised pyrrole is bound or not bound to a bi-functional cross-linking agent, and an oligonucleotide fixed directly on the functionalised pyrrole or fixed indirectly on the functionalised pyrrole by the cross-linking agent bound to the pyrrole.

Claim 54 (Previously Presented): The method of claim 28, wherein the biological probe is a functionalized oligonucleotide and which is fixed directly or indirectly onto the functionalized pyrrole.

Claim 55 (New): A biochip comprising in this order; a silica substrate; a silane layer comprising pyrrole sites; a resin layer coating the silane layer comprising pyrrole sites forming

microwells such that the base of the microwells is composed at least partly of the silane layer comprising pyrrole sites; a pyrrole and functionalised pyrrole copolymer layer fixed on the silane layer comprising pyrrole sites at the base of the microwells, wherein the functionalised pyrrole is bound or not bound to a bi-functional cross-linking agent, and an oligonucleotide fixed directly on the functionalised pyrrole or fixed indirectly on the functionalised pyrrole by the cross-linking agent bound to the pyrrole.